

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of the claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): A molecular rotary motor comprising:  
a first array of a first motor molecule wherein the first motor molecule is disposed upon a first surface; and

a second array of a second motor molecule wherein the second motor molecule is ~~directionally aligned and~~ disposed upon a second surface of a cylinder, shaft or cone wherein the cylinder, shaft or cone has a longitudinal rotation axis, the second surface being different from the first surface, and

wherein the first and second arrays are in sufficiently close contact to interact and rotate the second surface ~~relative to the first surface~~ around the longitudinal rotation axis of the cylinder, shaft or cone, and the first motor molecule and the second motor molecule are each directionally aligned with respect to each other such that orientation of the second motor molecule directs movement of the second surface, the second motor molecule being directionally aligned substantially perpendicular to the longitudinal rotation axis of the cylinder, shaft or cone.

Claim 2 (currently amended): The molecular motor of claim 1, further comprising a driven member rotatable by the interaction between the first ~~surface~~ array and the second ~~surface~~ array.

Claim 3 (withdrawn – previously presented): The molecular motor of claim 1, wherein the first array and the second array comprise multiple nested arrays that interact with one another to rotate relative to one another.

Claim 4 (withdrawn – previously presented): The molecular motor of claim 1, wherein the first surface comprises a first curved surface and the second surface comprises a second curved surface.

Claim 5 (withdrawn – previously presented): The molecular motor of claim 4, wherein the first and second curved surfaces are continuous curved surfaces.

Claim 6 (withdrawn – previously presented): The molecular motor of claim 5, wherein the first and second curved surfaces are complementary shaped cylindrical or conical surfaces.

Claim 7 (withdrawn – previously presented): The molecular motor of claim 6, further comprising a first nested member and a second nested member, wherein the first and second curved surfaces are complementary curved surfaces of the first and second nested members.

Claim 8 (previously presented): The molecular motor of claim 1, wherein the first motor molecule is myosin and the second motor molecule is actin.

Claim 9 (original): The molecular motor of claim 1, further comprising a source of ATP.

Claim 10 (previously presented): The molecular motor of claim 1, wherein the first and second surfaces comprise perforations to allow permeation of a liquid fuel source to the motor molecules.

Claim 11 (withdrawn): The molecular motor of claim 1, wherein the first array is coated on a first curved surface, and the second array is coated on a second curved surface.

Claim 12 (withdrawn – previously presented): The molecular motor of claim 1, wherein one of the arrays is coated on an outer surface of a cylinder, shaft or cone, and another of the arrays is coated on an inner surface of a surrounding structure having a complementary shape that substantially conforms to a shape of the outer surface of the cylinder, shaft or cone.

Claim 13 (currently amended): The molecular motor of claim 1, wherein the interaction between the first ~~surface~~ array and the second ~~surface~~ array rotates a driver.

Claim 14 (withdrawn): The molecular motor of claim 13, wherein the driver is an internal shaft or cylinder in the motor.

Claim 15 (withdrawn): The molecular motor of claim 13, wherein the driver is an outer curved surface of the motor.

Claim 16 (currently amended): A motor comprising:  
a first array of a first motor molecule;  
a second array of a second motor molecule ~~that interacts with the first motor molecule to move directionally relative to the first array~~ disposed upon a surface of a cylinder, shaft or cone wherein the cylinder, shaft or cone has a longitudinal rotation axis; and  
a driven member moved by the directional movement of the second ~~array~~ surface,  
wherein the first and second arrays of motor molecules are in sufficiently close contact to interact and ~~move~~ rotate the second array relative to the first array surface around the longitudinal rotation axis of the cylinder, shaft or cone, and  
wherein the driven member is a rotating shaft, a propeller, a ~~rotatable~~ wheel, a lever-arm, a gear system, or a pulley system.

Claim 17 (previously presented): The molecular motor of claim 1, wherein predetermined dimensions of the first and second arrays determine a power output of the motor.

Claim 18 (previously presented): The molecular motor of claim 17, wherein the predetermined dimensions are lengths of the first and second arrays.

Claim 19 (withdrawn – previously presented): The molecular motor of claim 3, wherein a predetermined number of nested arrays are provided to select a speed of rotation of the motor.

Claims 20-39 (canceled).

Claim 40 (previously presented): The molecular motor of claim 1, further comprising a supply of a fuel source, wherein the supply of the fuel source is used to activate rotation of the second surface relative to the first surface.

Claim 41 (original): The molecular motor of claim 40, wherein the supply of the fuel source is a regulated supply of the fuel source.

Claim 42 (original): The molecular motor of claim 41, wherein the regulated supply of the fuel source is regulated by a switch or a valve.

Claim 43 (original): The molecular motor of claim 40, wherein the fuel source is ATP.

Claims 44-53 (canceled).

Claim 54 (currently amended): A molecular motor comprising:

a first array of a first motor molecule disposed on a first surface;

a second array of a second motor molecule disposed on a second surface of a cylinder, shaft or cone wherein the cylinder, shaft or cone has a longitudinal rotation axis, wherein the second motor molecule interacts with the first motor molecule to move directionally relatively to the first motor molecule; and

at least one perforation in the first or second surface to allow permeation of a liquid fuel source through the surface to the motor molecules,

wherein the first and second arrays of motor molecules are in sufficiently close contact to interact and rotate the second surface ~~relative to the first surface~~ around the longitudinal rotation axis of the cylinder, shaft or cone.

Claim 55 (currently amended): The molecular motor of claim 54, wherein the first motor molecule is myosin and the second motor molecule is actin and the actin is applied directionally to the second surface such that orientation of the actin directs movement of the second surface.

Claims 56-58 (canceled).

Claim 59 (withdrawn): The molecular motor of claim 1, wherein the first array is coated on a planar surface of a first annular substrate and the second array is coated on a planar surface of a second annular substrate.

Claim 60 (withdrawn): The molecular motor of claim 59, wherein the coated planar surface of the first annular substrate is adjacent to the coated planar surface of the second annular substrate.

Claim 61 (withdrawn – previously presented): The molecular motor of claim 59, further comprising a driver coupled to the second annular substrate and wherein rotational movement of the second surface rotates the driver.

Claim 62 (withdrawn – previously presented): The molecular motor of claim 1, wherein at least one of the first surface or the second surface comprises at least one planar surface of an annular substrate.

Claim 63 (withdrawn – previously presented): The molecular motor of claim 54, wherein the first or second surface comprises at least one planar surface of an annular substrate.

Claims 64-79 (canceled).

Claim 80 (withdrawn): The molecular motor of claim 1, wherein at least one of the arrays is coated on a continuous loop of a flexible substrate.

Claim 81 (withdrawn – previously presented): The molecular motor of claim 80, wherein the continuous loop rotates along an elongated cylindrical, oblong, elliptical, or serpentine path.

Claim 82 (canceled).

Claim 83 (currently amended): A motor comprising:  
a first array of a first motor molecule disposed on a curved surface of a first cylinder, first shaft or first cone, wherein the first cylinder, first shaft or first cone has a longitudinal rotation axis;  
a second array of a second motor molecule disposed on a second surface,  
wherein the first and second arrays are in sufficiently close contact to interact and ~~move~~ rotate the second surface ~~relative to the surface of~~ around the longitudinal rotation axis of the cylinder, shaft or cone, or to interact and ~~move~~ rotate the curved surface of the cylinder, shaft or cone ~~relative to the second surface~~ around the longitudinal rotation axis.

Claim 84 (previously presented): The motor of claim 83, wherein the first array of the first motor molecule is disposed on the surface of a cylinder.

Claim 85 (withdrawn): The motor of claim 84, wherein the second surface is a curved surface complementary to the surface of the cylinder.

Claim 86 (previously presented): The motor of claim 83, further comprising a driven member moved by the directional movement of the second surface or the surface of the cylinder, shaft or cone.

Claim 87 (previously presented): The motor of claim 83, wherein the first and second motor molecules are proteins.

Claim 88 (previously presented): The motor of claim 83, wherein the first motor molecule is myosin and the second motor molecule is actin.

Claim 89 (previously presented): The motor of claim 83, wherein the first motor molecule is kinesin and the second motor molecule is a microtubule.

Claim 90 (withdrawn – previously presented): The motor of claim 83, wherein the second surface is a curved surface complementary to the curved surface of the cylinder, shaft or cone.

Claims 91-92 (canceled).

Claim 93 (currently amended): The molecular motor of claim 1, wherein the second ~~array~~ surface is configured to rotate through at least one complete rotation relative to the first ~~array~~ surface.

Claim 94 (previously presented): The molecular motor of claim 1, wherein the first and second motor molecules are proteins.

Claim 95 (previously presented): The molecular motor of claim 1, wherein the first motor molecule is kinesin and the second motor molecule is a microtubule.

Claims 96-97 (canceled).

Claim 98 (currently amended): The ~~molecular~~ motor of claim ~~[[44]]~~ 16, wherein the first motor molecule is kinesin and the second motor molecule is a microtubule ~~and the second motor molecule is applied directionally to the surface.~~

Claim 99 (canceled).

Claim 100 (currently amended): The molecular motor of claim 54, wherein ~~at least one of the first surface or the second surface~~ is a surface of a cylinder.

Claim 101 (previously presented): The molecular motor of claim 54, wherein the first and second motor molecules are proteins.

Claim 102 (currently amended): The molecular motor of claim 54, wherein the first motor molecule is kinesin and the second motor molecule is a microtubule and the second motor molecule is applied directionally to the second surface such that orientation of the microtubule directs movement of the second surface.

Claim 103 (previously presented): The molecular motor of claim 54, wherein the second array and the second surface are configured to rotate relative to the first array and the first surface.

Claim 104 (previously presented): The molecular motor of claim 1, wherein the second surface is rotatable relative to the first surface in a rotational direction that substantially parallels the directional alignment of the second motor molecule.

Claim 105 (previously presented): The motor of claim 83, wherein the second surface is rotatable relative to the surface of the cylinder, shaft or cone.

Claim 106 (previously presented): The motor of claim 83, wherein the surface of the cylinder, shaft or cone is rotatable relative to the second surface.

Claim 107 (previously presented): The molecular motor of claim 2, wherein the driven member is rotatable in a rotational direction that substantially parallels the directional alignment of the second motor molecule.

Claim 108 (currently amended): The molecular motor of claim ~~[[91]]~~ 16, wherein the ~~cylinder, shaft or cone has a longitudinal axis and the~~ second motor molecule is directionally aligned substantially perpendicular to the longitudinal rotation axis.

Claim 109 (previously presented): The motor of claim 83, wherein the second surface is a surface of a second cylinder, second shaft or second cone.



Claim 110 (currently amended): The motor of claim 109, wherein the second cylinder, second shaft or second cone has a longitudinal axis that is the same as the longitudinal rotation axis of the first cylinder, first shaft or first cone, and the first motor molecule and the second motor molecule are directionally disposed on the first surface and the second surface, respectively, substantially perpendicular to the longitudinal rotation axis.

Claim 111 (new): The motor of claim 1, wherein the second motor molecule is rotatable in a rotational direction that substantially parallels the directional alignment of the second motor molecule.

Claim 112 (new): The motor of claim 83, wherein the first motor molecule and the second motor molecule are directionally aligned with each other such that orientation of the first motor molecule relative to orientation of the second motor molecule directs movement of the second motor molecule relative to the first motor molecule.

Claim 113 (new): The motor of claim 112, wherein rotation of the second surface or the curved surface is in the same direction as the directional alignment of the first motor molecule and the second motor molecule.

Claim 114 (new): The motor of claim 1, wherein the second surface rotates relative to the first surface.

Claim 115 (new): The motor of claim 16, wherein the second array rotates relative to the first array.